Before the

Federal Communications Commission

Washington, DC 20554

In the Matter of	)	
	)	
Carrier Current Systems, including Broadband over Power Line Systems	)	ET Docket No. 03-104
	)	
	)	
Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems	)	ET Docket No. 04-37

ARINC Reply to Oppositions to Petition For Reconsideration

Aeronautical Radio, Inc. ("ARINC"), pursuant to Section 1.429 of the Commission's Rules, 47 C.F.R. § 1.429, hereby replies to the oppositions directed against its Petition for Reconsideration ("Petition") in this proceeding. For the reasons set forth in its Petition and in this Reply, the Commission should grant ARINC's limited Petition.

The Commission should not allow low-voltage and in-building use of BPL at aeronautical mobile (R) frequencies.

In its Petition ARINC urged the Commission to follow the example set forth in Section 15.615 of the Rules and prohibit the use of aeronautical mobile (R) frequencies for the transmission of broadband signals on low-voltage lines, including those within buildings. ARINC noted the harmful interference that it had received at its Half-Moon Bay, California, receive site and the expensive and time-consuming efforts that had been necessary in order to resolve this interference, which was attributable to carrier current devices installed in residences.[1] This interference was traced by ARINC engineers some

[1] ARINC Petition at 4. The efforts at identifying the sources of interference at Half Moon Bay referenced in ARINC's Petition occurred well after the initial visit of the Commission's field engineer noted in the memo cited by Current Technologies. Current Technologies Opposition at n. 43.

eight kilometers from the Half Moon Bay receive site. Investigation of the problem involved considerable expense and manpower. Before the problem could be mitigated, ARINC was forced to reconfigure its operations to remove the frequency from operation at the site and to substitute another frequency. This change necessitated the issuance of new frequency charts for the aviation community. The costs ran into the tens of thousands of dollars. To trivialize this problem with rhetoric that characterizes it as an "isolated incident"[2] and to assert that the Half Moon Bay interference should be ignored because the problem has now been resolved strains credulity.[3] The interference at Half Moon Bay was, by any consideration, "harmful interference." It seriously degraded ARINC's HF communications on 3013 kHz and its resolution involved a protracted and expensive effort. The fact that ARINC, working with the Commission, was able to assist in cleaning up this problem is no reason for minimizing the harm that arose nor is it any basis for believing that such problems will not reoccur.

Nor does advance notice of deployment provide an adequate safeguard for consumer device use of aeronautical mobile (R) frequencies. Consumers simply do not know how their devices can affect aeronautical communications and have little incentive to focus on such matters.

The assertion that ARINC's modeling provides no basis for amending the rules to prohibit the use of aeronautical mobile(R) HF frequencies on low voltage lines and inside wiring also rings hollow. Low voltage power lines come in a wide array of deployment

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[2] Phonex Opposition at 2. The Phonex pleading was apparently filed March 30, 2005, a week after the March 23 deadline, and was not served on ARINC as required by the Commission's Rules.

[3] Opposition of HomePlug Power Line Alliance at 4.

configurations. While lines of less than 2000 feet are common, long deployments also occur, especially in rural environments where lines run from transformers near main roads to farmsteads. Even in urban areas, low voltage lines exhibit great diversity with the deployment configurations varying because of geography, secondary load, and historical practices. For example, in older neighborhoods, "star" configurations in which one transformer provides power to several homes over open wire circuits are common. Sometimes, more modern replacement lines feature twisted wire configurations, which, in theory, may be less prone to radiation, but unlike true transmission lines such wires are not necessarily terminated to render the lines less likely to radiate (especially if one of the utility customers serviced is not a BPL subscriber). In short, the wide variety of low voltage configurations is but one more reason to safeguard the nation's aeronautical mobile (R) frequencies by not permitting those frequencies to be employed by systems that present inherently greater potential for radiation than do other so-called unintentional digital devices.

An extrapolation factor of 20 dB/decade below 30 MHz is warranted.

In its Petition ARINC made the case for the use of a 20 dB per decade extrapolation factor. Not surprisingly, BPL interests have decried this factor as overly conservative.[4] ARINC's proposal was rooted not only in sound engineering, but also in the need to protect aviation from harmful interference due to emissions radiated from BPL systems. While ARINC stands by its showing that 20 dB per decade is a reasonable extrapolation factor, a prohibition on the use of aeronautical mobile(R) frequencies for low-voltage and in-house BPL would reduce the need for such a change.

[4] *See e.g.*, Opposition of HomePlug Power Line Alliance at 5; Opposition of Phonex at 3; Opposition of Amren Energy Communications *et al* at 2.

A 20 dB notch does not necessarily guarantee interference-free operation.

In its Petition ARINC urged the Commission to clarify that a 20 dB notch will not necessarily be accepted as resolving an interference problem.[5] ARINC did not ask the Commission to alter the 20 dB notch requirement *per se*. Rather, ARINC noted that merely reducing harmful emissions by 20 dB affords no guarantee of interference-free operations. The fact that ARINC's request for clarification drew objections underscores the need for such clarification.[6] No matter what techniques are permitted or required as approaches to interference mitigation, licensed services must still be protected from harmful interference. This principle is entirely consistent with Section 15.5 of the Commission's Rules. As such, ARINC simply urged the Commission to clarify the obligations of BPL service providers lest there be any misunderstanding as to this point. After considering the oppositions, the need for such clarification stands out even more.

[5] ARINC Petition at 5 – 6.

[6] Opposition of the United Power Line Council at 7; Opposition of Current Technologies at 19. Current, at least, seems to understand the ARINC position and notes that more suppression could be required if needed.

Conclusion

The Commission's BPL rules represent an obvious compromise designed to implement a new broadband technology while attempting to avoid the generation of harmful interference. ARINC submits that in large measure the Commission's efforts are likely to prove successful. By making the limited changes requested in ARINC's Petition for Reconsideration the Commission can provide greater assurance that the promise of BPL as a broadband technology can be fulfilled without exacting an undue price at the expense of licensees and those members of the public who depend on reliable HF radio services for safe and efficient air transport.

Respectfully submitted,

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CERTIFICATE OF SERVICE

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